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NATIONAL DEVELOPMENTS

REGULATIONS FOR NATURAL SCIENCES PRIZES PUBLISHED

Beijing GUANGMING RIBAO in Chinese 8 Dec 79 p 1

[Text] Xianhus Beijing, 7 Dec--The State Council recently promulgated "Regulations Governing People's Republic of China Natural Sciences Prizes." The full text follows:

Article 1. These regulations are formulated in order to encourage the positiveness and creativeness of science workers, to accelerate the development of China's science enterprises and to promote socialist modernization contruction.

Article 2. The natural sciences prizes shall be awarded to individuals or groups of individuals whose scientific research achievements in explaining natural phenomena, characeristics or laws bear significant importance in scientific and technological developments.

Article 3. Natural Sciences Prizes are divided into four categories:

First Prize--A citation, a first-grade medal and a cash award of 10,000 yuan;

Second Prize--A citation, a second-grade medal and a cash award of 5,000 yuan;

Third Prize--A citation, a third-grade medal and a cash award of 2,000 yuan;

Fourth Prize--A citation, a fourth-grade medal and a cash award of 1,000 yuan.

Article 4. Those scientific research achievements stipulated in Article 2 of these regulations bearing particularly significant importance shall be awarded special prizes. The State Scientific and Technological Commission (hereafter called State Scientific Commission) shall report the cases to the State Council for approval of separate prizes.

Article 5. Items soliciting awards shall be recommended by various research organizations, institutions of higher education and nation-wide academic circles, and also recommended jointly by more than 10 scientific and technological workers of the assistant researcher level or those higher than the assistant researcher level.

Article 6. Items soliciting awards shall be separately classified and preliminarily screened by the Chinese Academy of Sciences, Ministry of Education, Scientific and Technical Association of the People's Republic of China, State Agricultural Commission, Ministry of Public Health, State Economic Commission, National Defense Industry Staff Office of the State Council and other organizations. During the process of preliminary screening, evaluation by persons of the same profession shall be made, selection shall be made, and prize category suggested.

Article 7. The State Scientific Commission shall supervise the overall work of natural sciences prizes.

The State Scientific Commission shall establish a Natural Sciences Prizes Commission vested with the responsibility of judging the items to be awarded and deciding the prize category. The State Scientific Commission shall approve and make the award thereafter.

Article 8. The citation, medal and cash for a natural sciences prize belonging to an individual shall be awarded to the individual; for that belonging to a group of individuals, the citation shall be awarded to the group, the medals to the group and to the individual or individuals who have made the greatest contribution to that scientific research work, and the cash shall be reasonably distributed among the individuals participating in the scientific research work in accordance with their contributions.

Article 9. Natural Sciences Prizes shall also be awarded in accordance with the stipulations of these regulations to overseas Chinese and foreign nationals who have engaged in natural sciences research with such outstanding achievements as to have significant contributions to the developments of the scientific and technological enterprises of the People's Republic of China.

Article 10. Recommendations and judgments of items soliciting award shall be done objectively and in earnest. Strict punishment shall be accorded to cases of corruption, fraud, falsehood and plagiarism in accordance with their seriousness.

Article 11. These regulations shall come into force from the day of promulgation. In case there is any discrepancy which may arise from the previously promulgated regulations and rules relative to natural sciences prizes, these regulations shall govern.

9503

CSO: 4008

RECENT ACADEMIC ACTIVITIES IN CHEMISTRY REPORTED

Electrochemistry Conference

Beijing HUAXUE TONGBAO [CHEMISTRY BULLETIN] in Chinese No 4, 23 Jul 79 p 93

[Article by Tian Zugeng [3944 4371 1649]: "Conference on the Studies of Electrochemistry Organized by Universities"]

[Text] A conference on the studies of electrochemistry organized by universities affiliated directly with the Ministry of Education was held in Xiamen University on 2-10 January this year. The participating institutions included 15 affiliated universities, 10 colleges, the Chinese Academy of Sciences and 72 members from 39 other units of machine-building departments and related organizations. This was the first national meeting of this kind since 1963.

Reports delivered in this conference consisted of four special topics from the Chinese chemists' delegation to the International Electrochemical Conference and to Europe. There were 10 reports on developments and theses, and 26 papers on various group discussions. Eighteen written reports were exchanged. These papers reflected the achievements by workers on their investigations on fundamental theories and applied electrochemistry in recent years in our country.

One can picture from this conference the extensive development in electrochemical studies by various groups and units. Studies have touched upon the fundamental theory of electrochemistry, electrochemical research methodology, and applied electrochemistry, such as chemical source of electricity, electroplating, metal decay, and electrodesalting etc. Each discipline produced its special results. The applications of techniques in other "overlapping" disciplines, such as photoelectrochemistry and semiconductor electrochemistry and the utilization of computer in electrochemistry research have also been started. All of these have attracted a vast interest among the comrades at the conference.

In accordance with the "double-hundred" approach, this conference revealed the fact that the discussions of diversified views, expression of individual opinions, and learning from each other have created an enthusiastic and democratic academic atmosphere.

Schedules for future meetings and development plans for research in electrochemistry by affiliated institutions of higher learning in the next few years were discussed. In addition, the problems of how to coordinate with the affiliated institutions and schools in scientific research and of training cadres, strengthening academic exchanges, and inviting foreign experts for lectures were also discussed. The conference also formulated plans.

Chemical Knowledge Series Editorial Committee

Beijing HUAXUE TONGBAO [CHEMISTRY BULLETIN] in Chinese No 4, 23 Jul 79 p 93

[Article by Si Shi [0674 1395]: "Chinese Chemical Society 'Chemical Knowledge Series' Editorial Committee Meeting in Quilin"]

[Text] For the purpose of extending chemical knowledge and technology to a large number of workers, an editorial committee for the publishing of a comprehensive "Chemical Knowledge Series" was organized. The first committee meeting was held in Quilin on 7 February 1979. Fourteen editorial committee members and four observers were present. Comrade Wang Xu [3769 1645], vice president of the Chemical Society and representing the board of directors of the society, announced the appointment of Zhang Qinglian [1728 7230 5571], chairman of The Department of Chemistry at Beijing University, as chief editor of this series and Yuan Hanqing [5913 5060 7230], Hu Bingfang [5170 4426 2455], and Hu Yadong [5170 0068 2639] as deputy chief editors. Chief editor Chang spoke at the inaugural meeting and discussed views and exchanged ideas with comrades of the Physics and Biology Knowledge Series Editing Committee who were also present at this meeting.

Veteran experts and professors and the young and middle-aged technicians discussed the project, including readership and format. A decision was made that this series should contain intermediate-level reading materials aimed at the young audience at or above the senior high school levels, and at the same time should serve as a reference aid for high school teachers and technicians as well as cadres. For this reason, this series must stress sciences and publish new materials rich in content. Narratives should be relatively simple and yet in depth with abundance of attractive illustrations.

The content of this series should include: 1. fundamental knowledge of various major disciplines of chemistry and basic theories and new achievements; 2. basic techniques and methods of chemical experimentation; 3. introduction to branch and peripheral disciplines in chemistry; 4. the tasks of chemistry in the four modernization programs; and 5. the history of chemistry and the problems of dialectics in chemistry. A total of 73 topics were selected at the conference. The basic contents were discussed and views and suggestions were forwarded to those comrades who wrote the articles for use as reference. Each topic selected consists of 100,000 characters.

This book series will be published by the Scientific Publishing House and the whole series is expected to be completed by 1982.

Biomembranes Conference

Beijing HUAXUE TONGBAO [CHEMISTRY BULLETIN] in Chinese No 4, 23 Jul 79
pp 93-94

[Article by Wang Zhihao [3769 3112 3185]: "The Chinese Academy of Sciences Conference on Biomembranes in Beijing"]

[Text] The Chinese Academy of Sciences held a conference on biomembranes from 7 to 15 January 1979 in Beijing. This was the first such meeting in our country. Participating in the conference were some 60 observers and 90 representatives from 40 units, including the Institute of Biology, Chemistry, and Physics under the Chinese Academy of Sciences, the Chinese Academy of Medicine, The Academy of Military Medicine and several institutes of basic and clinical medicines directly under Beijing Municipality.

There were 51 research reports and 24 symposium papers. Research on biomembranes in the country was mostly developed after the destruction of the "gang of four." A good beginning has been achieved although the time was short. As evident from the papers presented at this meeting, a certain amount of work has been carried out in different aspects and in different depth, and various modern instruments, such as scanning electron microscopes and electronic computers, have been used to investigate the cell surface to the [chromosome] membrane, and intracellular chloroplast membrane to nuclear membrane. Investigations have been conducted on tumor cells of higher animals as well as microbes. Such topics as "Some of the Developments in the Study of Biomembrane Structure," "Structure and Function of the Photosynthetic Membranes," "Structures and Function of the Chloroplast Membrane," "Studies on Lipids and Biomembranes," and "Sugars in the Biological Surface Structure" were evaluated in the reports. Theories and applications were introduced for techniques such as DCS, Raman spectrum, NMR, autoemission spectrum, etc. The richness of the content of the conference has enlightened and widened the horizon of all the participants.

Biomembranes are the basic cellular structures that participate in energy transfer, metabolic functions, transmission of nerve impulse, cell division, immune reactions, stimulations etc. Many important life processes are carried out in association with the membranes. Biological effects of drugs, metabolic regulations and cellular tumorigenesis are closely associated with the functions of the membranes. The bionics of the chemical industry and certain engineering technology also depend on the in-depth investigation of the basic principle of biomembranes. Therefore, investigations on biomembranes have attracted international and national attention and a tremendous progress has been made.

Studies in biomembranes are comprehensive. These studies not only involve biological and medical scientists but are also closely related to the fields of physics, chemistry, and technology. Therefore, to study biomembranes, one must absorb modern physical and chemical concepts and new technological science and methodology.

Representatives in the conference suggested that leading institutions should properly organize, and coordinate work programs, set up meetings, assist in investigations, and enhance academic exchanges. Interactions among biologists, physicists, chemists, electronic scientists should be strengthened. Multi-disciplinary approaches, like those used in the battle fields, should yield much greater progress.

Chrysanthemumic Acid Ester Insecticide Conference

Beijing : XUE TONGBAO [CHEMISTRY BULLETIN] in Chinese No 4, 23 Jul 79 p 94

[Article by Wang Zhihao [3769 3112 3185]: "Chrysanthemumic Acid Ester Insecticide Conference in Nanjing"]

[Text] Jiangsu Province Chemical Society and the Entomology Society jointly sponsored a conference on chrysanthemumic acid ester insecticide on 18-21 January 1979 in Nanjing. There were more than 100 participants from 30 units of research, teaching, production, and administrative organizations throughout the country.

Chrysanthemumic acid ester is a new and highly effective insecticide of low toxicity and residue. Because of its highly active insecticidal strength, low dosages are sufficient to cover a wide range of insect species and yet with minimum harmful effects on humans, domestic animals and the environment. Therefore, it is believed to be an ideal agriculture chemical both nationally and internationally by experts.

The pace of the development of chrysanthemumic ester as an insecticide has been quite fast. Dichloro-chrysanthemumic acid ester was the first derivative that was relatively light stable. It was first synthesized in England in 1973. Subsequently, structurally simpler new compounds like S-5602 and Decis were synthesized. On this topic, deputy director Cheng Xuansheng [4453 2537 3932] of the Jiangsu Province Agricultural Chemicals Research Institute, reported "The New Development in Chrysanthemumic Acid Ester Insecticide." This report was well received.

Compared to the development of chrysanthemumic acid ester in other countries, our progress is relatively fast considering our late start. In 1975, the Jiangsu Province Agricultural Chemicals Research Institute was first to successfully synthesize dichloro benzyl chrysanthemumic acid ester. Many organizations in the country, such as the Elementary Organic Chemistry Institute of Nankai University, Zoology Institute of the Chinese Academy of Sciences, Shanghai Organic Chemistry Institute of the Chinese

Academy of Sciences, Shanghai Teachers' College, Nanjing University, Yunnan University, and Yangzhou Agricultural Chemicals Plant, have done much work in making new products and improving new techniques, and have scored certain results. Topics discussed in the conference consisted of two major groups--synthesis-analysis and effectiveness-toxicity. Representatives have made numerous valuable suggestions on the use and production of this insecticide.

Conference participants held that the study and research of chrysanthemumic acid ester are multidisciplinary and comprehensive in nature. Units concerned must strengthen their leadership, closely cooperate with one another, and bring into full play their special capabilities. Rapid progress will not be realized unless we invest our best effort to develop the research and production of chrysanthemumic acid esters as quickly as possible.

7703

CSQ: 4008

APPLIED SCIENCES

TRIAL PRODUCTION OF CHINESE CHARACTER DEVICE SUCCESSFUL

Beijing BEIJING RIBAO in Chinese 15 Dec 79 p 1

[Report: "Successful Trial Manufacture of 32x32 Chinese Character Device"]

[Text] The Qinghua University has successfully trial produced a 32x32 Chinese character composing device designed for the Chinese character data processing system. A sample for theoretical experimental purposes was completed in May 1978. This experiment culminated in the manufacture of a prototype model for mass production in September 1979. This success represented a new step forward in research on the Chinese character data processing technology, now a major subject of concern to researchers at home and abroad.

This Chinese character mechanical compositor is an important piece of equipment which feeds the Chinese character data processing system with Chinese characters. It is designed to arrange the Chinese characters in 32x32 typographical blocks and store them on a specially designed magnetic board, which contains a total of 6,161 Chinese characters and type symbols. Among them are over 5,000 most commonly used Chinese characters and over 1,000 Chinese phonetic alphabet letters, foreign language alphabet and symbols. When in use, it can project type symbols and 4 mm size characters from that well-organized storage magnetic board. Their legibility is 8 lines per mm. This machine is capable of projecting over 2,000 characters and symbols per second. A variety of remedial measures were taken to correct some malfunctions that occurred as the trial production of this machine was in progress. An observation of the frequent use of 6,714 characters and symbols revealed that the typographical errors were rated at one per ten thousand uses. Following 6 months of testing, its performance proved stable.

This Chinese character device can join a printer, a screen indicator and other apparatuses in forming a large-scale computer system complete with a Chinese character projector and terminal capable of printing Chinese language information on ordinary paper or making it appear on the screen indicator for observation and correction and revision. Hooked up to the microelectronic equipment, it can function as a simple Chinese character composing and printing

system using paper ribbons instead of numerical code to transfer information to other areas for fast reproduction. This success can also help revolutionize the printing technology.

Our printing enterprises recently successfully trial-produced an automatic camera typesetting machine to replace the matrix and hand typesetting process but could not immediately put it to use due to the unavailability of automatic proofreading equipment. But the successful production of the Chinese character composing device is expected to fill this gap and provide a favorable condition for our printing enterprises to apply new techniques and improve their efficiency.

The 32x32 Chinese character composing device was a major scientific research project designed by the Qinghua University computer control and application research group and produced by the Nanjing Matrix Plant in cooperation with the Beijing Xinhua Printing House and the Beijing Type casting Plant. These units are still continuing their cooperation in research work on the Chinese character data processing system.

9574

CSO: 4008

APPLIED SCIENCES

DEVELOPMENTS IN MICROCOMPUTERS CONTINUING

Beijing GUANGMING RIBAO in Chinese 16 Nov 79 p 1

[Article by Zhang Ruixi [1728 3843 3356]: "Our Nation Successfully Develops Microcomputers"]

[Text] This reporter has learned from the national microcomputer technology exchange conference that although our nation's research and development work in microcomputers started late compared to advanced nations, a backbone force in scientific research has gradually been formed and has made gratifying achievements.

This conference to exchange experience was held in Jintong in Shaanxi Province. Papers and technological summaries presented to the conference totaled over 40 papers. The research in "multiple logic circuits" by researcher Wang Shoujue [3769 1343 6030] of the Semiconductor Institute of the Chinese Academy of Sciences is a unique multiple logic circuit created in our nation. It has opened a new path for the popularization and mass production of computers. The report on "ultra high speed and super large integrated circuit" by Professor Huang Chang [7806 2412] of the Shaanxi Microelectronics Institute and "study of interface languages of microcomputers" by the institute's assistant researcher Shen Xuhang [3088 4872 2831] have all made breakthroughs in the research of microcomputers.

The conference exhibited over 60 products successfully developed by our nation. These products tell us that the Model 77 specialized microprocessor designed by our nation's own efforts has a high degree of integration, is reliable and has already been put to use in certain equipment. Our nation has also designed and developed some products for peripheral equipment of such very small sized equipment as small sized typewriters, small sized photoelectric instruments and box type magnetic tape equipment. Microcomputers have already begun to be used on a trial basis in industrial control, parametric surveying and medical instruments.

At the conference, delegates expressed many opinions and made suggestions regarding improvement of problems existing in our nation's scientific

research and production of computers. The delegates pointed out that the production of small machines is fast, the cost is low and the uses are wide. Since 1971, the development has been rapid. In some nations, the number of microcomputers has reached over 90 percent of the total number of computers in that nation. Our nation began research and development in 1974 and although achievements have been made, progress has been slow and the level of technology is low. To realize the Four Modernizations, the electronic computer which is a leading science must be developed and the development of microcomputers is a key.

The delegates pointed out the introduction of microcomputers from abroad must be according to plan, must be guided and must have a purpose. That which can be developed domestically need not be introduced from abroad. The Beijing Semiconductor Plant No 11, the Baoding Film Plant, the Semiconductor Institute of the Chinese Academy of Sciences and Qing Hua University have battled for 5 years to develop the ultramicrodot dry plate machine and it has been successful, yet concerned departments are preparing to import such equipment from abroad.

The delegates pointed out that to develop research and development of microcomputers, the phenomenon of placing emphasis on the complete machine while neglecting accessories and material components must be changed. If the questions concerning accessories and parts and technology are not studied and solved, it would be empty talk to say the products are up to standard. The study of basic theory and basic materials must be emphasized, otherwise the quality of research and development of the main equipment cannot be raised.

9296

CSO: 4008

SYMPOSIUM HIGHLIGHTS FUTURE ROLE OF SYSTEMS ENGINEERING

Beijing GUANGMING RIBAO in Chinese 10 Nov 79 p 1

[Article by correspondent Ceng Xisheng [2582A 1585 5110]: "Systems Engineering Symposium for Organization and Management"]

[Text] The first all-China symposium on systems engineering was held in mid-October in Beijing. At the meeting, experiences were exchanged, information traded, and the problem concerning strengthening coordination among different departments and other problems studied. All participants have determined to step up the pace in theoretical research and practical applications in systems engineering so as to make new contributions to national defense modernization as well as to science-consciousness and modernization of China's production, scientific research and economic organization and management.

Attending the symposium were 148 scientists, research engineers and technicians, teachers, and leading cadres from 120 units. The meeting received more than 100 papers and work reports, the contents of which involve organization and management, theoretical methods, engineering applications and military applications.

Responsible persons from the State Council, various departments of the Military Commission of the Central Committee of the CCP and the Chinese Academy of Sciences attended the opening ceremony. Qian Xuesen [6929 1331 2773], China's noted scientist and vice chairman of the National Defense Scientific and Technological Commission and an active promoter of systems engineering, chaired the symposium and made a report entitled "Vigorously Develop Systems Engineering and Establish a Systematic, Scientific Set-up at the Earliest Possible Date."

Modernized construction calls for scientific, modernized organization and management, and systems engineering is exactly that branch of knowledge for organization and management, and involves a broad range of engineering technology. From the viewpoint of systems engineering, it is obvious that from scientific research and design to putting into operation a spacecraft or a large electronic computer, the organizational management

of a joint iron and steel enterprise, a bank, a warehouse, etc., are all systems of different capacities and peculiarities. As individual entities, from departments of the military, education, medicine and sanitation, etc., to the fields of population, energy resources, environmental protection, personnel, etc., their organizational management work is entirely the object of systems engineering research. Every social activity will form a system in itself, and how to most effectively proceed with its organization and establishment and realize the best possible operation are problems to be solved by systems engineering. Economic planning and coordination control on a national scale and organizational guidance of socialist construction of our whole nation also can be considered large-scale social systems engineering.

By the early sixties, systems engineering had become an independent, comprehensive frontier science. It broadly covers the natural sciences, mathematics, social sciences, technological sciences and engineering technology, and encompasses the basic theories and corresponding application techniques of operations research, computer science and computation techniques, information theory, cybernetics, economics, philosophy, etc. Its numerous theoretical viewpoints, methods and techniques have realistic, practical meaning and very significant economic gains by helping leaders of various levels to make correct decisions and scientific forecasts and to exercise scientific, democratic management. Systems engineering was first applied in the United States. The management of the Polaris missiles research and manufacture project in the fifties and the organization work of the Apollo lunar-landing project in the seventies are two of the more successful examples in the United States in the application of systems engineering. In foreign countries, in addition to the wide application in the military, industrial enterprises, agriculture, water conservancy, communications, environmental protection, urban planning, etc., systems engineering is also promoted and applied with constant success in ecology, human systems, socio-economic systems, etc.

The systems engineering symposium showed that China has made definite strides in the research and application of this branch of engineering technology, whether military or civilian. On the civilian side, for example, experiments in systems engineering have been started in certain fields and professions, which include scientific research and production control of individual plants, computer systems design for machinery plants, ship hull design, systems engineering for open metal mines, power systems control, ecological system study, study of population growth control, etc. Concurrently, systems engineering in personnel training and basic research has also begun to receive attention. At present, several Chinese colleges and universities have opened courses in systems engineering, and systems engineering institutes (laboratories) have been established in Xi'an Jiaotong University, Qinghua University, Tianjin University, Central China Engineering College, Dalian Engineering College, and Shanghai Chemical Engineering College. But generally speaking, research and application in systems engineering in China, although off to a good start, is still far behind advanced foreign countries.

An overhaul is now urgently needed in organizational management, and systems engineering is one of the important measures in realizing this end. To this end, it was suggested by the scientists and representatives of various units attending the symposium that a publicity campaign for popularizing systems engineering be well done at present; rotational training of organization management cadres on hand with the knowledge of systems engineering should be conducted using various methods; the government is urged to further create the necessary conditions for the study and extensive applications of systems engineering, which include organizing and establishing scientific research institutions of various vocations, training more numerous and more quickly systems engineers, procuring special-purpose technical equipment, etc; academic activities should be extensively developed and national society of systems engineering should be established as early as possible.

9503

CSO: 4008

LIFE SCIENCES

BIOMEDICAL ENGINEERING GROUP ESTABLISHED IN CHONGQING

Beijing GUANGMING RIBAO in Chinese 16 Nov 79 p 1

[Text] Reporter Li Jiajie [2621 1367 2638] reports: The State Scientific and Technological Commission Biomedical Engineering Group has been officially established in Chongqing City on the twelfth of this month. China's famous scientist, the president of Chinese Academy of Medical Sciences, Huang Jiasi [7806 1367 7474] has been invited to be the head of the group.

Biomedical engineering is a peripheral science, newly arising in the realm of science and technology and is also a branch among China's sciences. It is a science that utilizes, comprehensively, modern natural sciences, new technologies, and their related theories and methods, such as those of biology, mechanics, modern physics, electronics, high molecular chemistry, and computer technology, to proceed, from the point of view of engineering, an in depth study of the structure and the function of the human body and their interrelationship. It brings mankind's understanding of itself from the macro to the micro, from the qualitative to the quantitative, from the static to the dynamic point of view so as to improve the level of diagnosis and treatment. It is extremely significant in accelerating the realization of the modernization of medicine and in protecting the health of the human body.

Although compared with foreign countries, China's research in biomedical engineering began rather late, due to the efforts of specialists, professors, and scientists and technologists engaged in this field, very encouraging progress has been obtained. For example, artificial heart valves, artificial joints, artificial kidney, and pacemakers have already been successfully made and have been clinically applied to demonstrate very obvious effects. In such subjects as artificial heart, artificial liver, artificial hearing, artificial skin, etc. animal models have been set up. The reagent, D amino galactan, needed to manufacture hepatic coma animal model had to be imported in the past. It has now been successfully synthesized. At the same time, attention has also been given to training talents to devote efforts to research in this field. At present, such institutions of higher learning and scientific research organizations as the Chinese Academy of Medical Sciences, Zhejiang University, Qinghua University, etc. have begun to admit students and researchers in this science.

The establishment of a biomedical engineering group was proposed by the beloved Premier Zhou Enlai before his death. In early November of this year, 93 specialists, professors, scientists, technologists, and related cadres came from various parts of the nation to attend the meeting to establish the group. They earnestly discussed the direction of development and research plans of biomedical engineering in China and extensively exchanged related work experiences and scientific activities in China and abroad. Due to the fact that the development of this science is related to the health of hundreds of millions of people, the specialists and professors who attended the meeting suggested that all related departments give this science the attention it requires. The necessary conditions for research should be guaranteed. The foundation of an emphasized research subject should be quickly affirmed. In view of the fact that this science traverses many sciences, coordination and cooperative effort are extremely important. For this reason, they hoped that related departments will organize cooperative groups to devote to this field. Meanwhile, related institutions of higher learning should quickly train talents for this field and they also suggested that related institutions of higher learning should establish this specialty and increase the number of admissions to the specialty.

6168

CSO: 4008

LIFE SCIENCES

NEW BREAKTHROUGH IN CONTROL OF EQUINE INFECTIOUS ANEMIA

Beijing GUANGMING RIBAO in Chinese 18 Nov 79 p 1

[Text] Reporters Wang Enrong [3769 1869 2837] and Zheng Xiaofeng [6774 4562 2800] report: Chinese researchers in veterinary medicine have successfully bred out equine infectious anemia vaccine to disclose the secret of effective control of equine infectious anemia which is the concern of veterinary medicine scientists of every country of the world. The viewpoint which maintains that immunity to equine infectious anemia does not exist and a vaccine cannot be produced is thus refuted. This success has put China in the leading position in the world in equine infectious anemia research.

This important research achievement which had been the object of research of scientists of veterinary medicine for more than a century was accomplished by a team of researchers headed by research assistant Shen Rongxian [3088 2837 7359] of Harbin Institute of Veterinary Medicine, Chinese Academy of Agricultural Sciences. The team devoted more than a decade to bring about the success. This result will not only eliminate equine infectious anemia as an important contribution in promoting the development of agriculture and animal husbandry, it will also significantly provide a direction to immunity for chronic viral infectious diseases in men and animals. For his creative work in scientific research, research assistant Shen Rongxian has been honored by the city of Harbin as a model worker.

Equine infectious anemia is a viral infectious disease. Once infected, the horse carries the virus for life. This type of disease spreads very fast; the mortality rate is great; and the danger is great. In case of acute infection, death occurs in less than a week. The most dangerous kind is chronic infection. When a horse is infected by this kind of virus, it becomes the source of infection. With mosquitoes and horseflies as vectors and through the blood, it spreads the infection to healthy horses. Since this disease was first discovered in the 1880's, serious damage has been suffered by all major countries of the world where horses are raised. At present, the method used by all countries of the world to handle equine infectious anemia remains to slaughter all horses that are found to be infected, because in these more than 130 years, this disease has never been controlled. It is therefore called "an incurable disease" in veterinary medicine of the world.

Early in the 1960's, when this disease was first spread to China from the Soviet Union, it was immediately given attention by the Chinese Government and workers of veterinary medicine. The concerned government department immediately gave the responsibility to the Harbin Institute of Veterinary Medicine, Chinese Academy of Agricultural Sciences, to establish a special research organization to proceed to study it. The State Scientific and Technological Commission, the Ministry of Agriculture, and the Chinese Academy of Agricultural Sciences have always been concerned with the research studies of this subject.

The researchers of the Harbin Institute of Veterinary Medicine were not constrained by the authoritative judgment of foreign scientists who believed that immunity to equine infectious anemia does not exist. They insisted upon practice and diligent study. They first isolated strong strains of horse virus and bred out strong virus strains of donkey infectious anemia which existed in China only. Afterwards, they created two types of specific diagnostic techniques of "complement reversal" and "agar expansion," which were extensively applied in production to verify their qualitative reliability for purifying and determining equine infectious anemia. On this basis, beginning in 1968, they tried to culture donkey white cell weakened equine infectious anemia virus vaccine. They set out bravely to search for the possibility of existence of immunity to equine infectious anemia.

Some people believed that the equine infectious anemia virus does not have directional variation in the horse's body, and therefore it is difficult to create a vaccine. The veterinary workers of China insisted upon the viewpoint of practice first. Through repeated and multiple attacks in survived sick horses and donkeys with strong virus, it was discovered that very great resistance was demonstrated; scientific data to prove that equine infectious anemia can result in relatively good immunity was obtained. After the victory, they proceeded further to obtain a variety of equine infectious anemia, that is the donkey white cell weakened virus of equine infectious anemia. They used this result for laboratory verification and for tests on a large quantity of horses. Aside from some individual horses which became sick, all the other tested horses remained safe to prove the attenuation of toxicity. Through many types of tests, they also proved the stability of the toxicity attenuation. In the summer, during the season of mosquitoes and horseflies, the researchers placed healthy horses among the herds of vaccinated horses to raise them together. Following examination, the healthy horses were found to be not infected. This is further evidence of safety for the weakened vaccine which they had created, while it was able to cause the vaccinated horses and donkeys to produce relatively good immunity. Following intermediate tests in large quantities for more than 3 years, the more than five million horses, mules, and donkeys that had received the vaccine fully proved that the weakened vaccine provides relatively good immunological protection. Virus attack tests indicate that the rate of protection for horses is above 75 percent, for donkeys it is 99 percent. The immunity in horses may be sustained for more than 3 years.

Electronics

AUTHOR: HUANG Jiasi [7806 1367 7475]

ORG: President, Chinese Academy of Medical Sciences; Professor of Chest Surgery

TITLE: "Electronics and Medicine"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] No 7, Jul 79 pp 2-3

ABSTRACT: The phenomenon of bioelectricity was first noticed in the 18th Century. later, with the aid of electronic technology, instruments were made to record such phenomenon. The manner with which such instruments as electrocardiograph, electroencephalograph, electromyograph, etc. record the variation of bioelectrical potential of the human cell is explained. Since the 1960's, further development of this new branch of electronics made it possible to use man-made devices to aid or replace the function of human organs. This paper explains briefly the current status of biomedical electronics, biomedical engineering, and the application of electronic computer in medicine. Although Chinese physicians have extremely rich experience in clinical medicine, with respect to the application of electronics and other engineering techniques, Chinese medicine remains very backward. The readers are urged to analyze foreign experiences and establish a close relationship between medical scientists and engineers for the purpose of acquiring an understanding of the unlimited future of electronics in medicine and the modernization requirements of Chinese medicine.

AUTHOR: GUI Shaosheng [2981 4801 0581]

ORG: Professor of Shanghai Jiatong University

TITLE: "Communications Technology and Its Theory"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] No 7, Jul 79 pp 3-4

ABSTRACT: When we speak of communications we think immediately of telephone, and telegraph. In fact, wire-communication has now been developed into short-wave communication, microwave relay communication, satellite communication, etc. This paper lists the areas of development the Chinese communication system requires for modernization in order to reach and surpass the advanced level of the world. Although very briefly, the paper covers almost the entire field of communications technology, including the probability theory, random process, mathematical analysis of resonant wave, signal and noise theory, filtering theory, etc.

AUTHOR: HU Peiquan [5170 3099 2164]

ORG: Professor, Northwest Industrial University

TITLE: "Speaking from Electronic Air Force"

SOURCE: Beijing DIANLI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 7, Jul 79 pp 4-5

ABSTRACT: As far as the author knows in foreign countries the term electronic air force began to appear in 1971. The meaning of the term indicates the fact that electronic instruments have penetrated every aspect of the air force. In that year, the Fairchild Company realized the first large scale integrated circuit to put about 160,000 components in each square inch of area. In 1975 about one third of the cost of a military airplane of the U.S.A. was spent on electronic equipment; in various guided missiles the cost of electronic equipment amounted to three fourths. The three stages of development of large scale integrated circuit, starting from 1969 are discussed. The fact that Massachusetts Institute of Technology requires 132 credits for aviation electronics specialty compared with the 96 credit-requirement for other specialties is mentioned to emphasize the importance of electronics in aviation today.

AUTHOR: HU Zheng [5170 1767]

ORG: Professor, Northwest College of Telecommunications Engineering

TITLE: "Brief Discussion of Problems of Wallis Function"

SOURCE: Beijing DIANZI XUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 7, Jul 79 p 5

ABSTRACT: Chinese scientists have begun to study Wallis function for several years. Nowadays, questions, such as what are the conditions of advancement in this field, does it have any prospect of future progress, etc. are often heard. The author proposes to discuss these problems briefly in the paper. His discussion begins with the fact that in recent years the realm of study on Wallis function has been extended from Wallis electromagnetic wave to other nonsinusoidal electromagnetic waves, and theories related to Wallis function have been grouped together and called sequence theory. Future prospects include: (1) The use of Wallis transform to handle data, such as television pictures, to reach the objective of a greater rate of compression; (2) To transform underwater moving objects into pictures with sonic waves; (3) To apply nonsinusoidal electromagnetic wave to radar, communications, etc. The paper also briefly mentions such topics as into-the-ground radar, frequency sharing, and the limitations of Wallis function, etc.

AUTHOR: ZHANG Deqi [1726 1795 7871]

ORG: Professor, Beijing Industrial College

TITLE: "Progress in Antenna Technology"

SOURCE: Beijing DIANZI XUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 7, Jul 79 p 6

ABSTRACT: In the early 20th Century, when radio was first introduced, it was used mainly for longwave communication. The asymmetric grounded antenna appeared and methods of theoretical analysis and engineering computation for that kind of antennas were proposed. When the use of the ionosphere for long distance transmission was discovered in 1925, a new type of directional short-wave antenna was designed to meet the needs. In order to meet today's needs of radio communication, broadcasting, television, radar, guided missiles, etc. the types and properties of antennas have also increased. On the one hand, there is a more profound understanding of the radiation characteristic of electromagnetic field while the appearance of electronic computers has made it possible to adopt new methods of antenna analysis and calculation. The subject of geometrical optics is also briefly mentioned in connection with antenna computation.

AUTHOR: ZHENG Jiyu [6774 4949 4416]

ORG: Northwest College of Telecommunication Engineering

TITLE: "Lock Phase Circuit and Its Applications: (I)"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 7, Jul 79 pp 13-15, 42

ABSTRACT: At present, applications of lock phase technique cover almost the entire realm of radio technology, from space probe, artificial satellite, guided missiles, radar, navigation guidance, communications, computer technology, laser, to electrical meters. Compared with other circuitries, it has the advantages of low cost, small volume, and higher reliability. By nature, it is a feedback system executing synchronous control to frequency and phase. This paper explains its applications in the realm of communications. The general conditions of development of today's digital lock phase circuit and integrated lock phase circuit are introduced. Existing problems relating to the application of lock phase circuit in China are discussed.

AUTHOR: KANG Songshi [1660 6139 6108]

ORG: None

TITLE: "Application of Numerical Code Technique in Television Broadcasting"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 7, Jul 79 pp 21-23

ABSTRACT: This installment contains the third and fourth chapters of the paper. The third chapter discusses the storage and application of digital code television signals. The fourth chapter contains the conclusion of the author on the subject. As a long term prospect, total digitalization is the goal of television broadcasting. At present, breakthroughs in digital television recording and digital television camera are still being awaited. It has been proposed that laser recording may be used to increase the recording density, and solid camera device may be the goal of future development. These may take 8-10 years in foreign countries. Furthermore, more progress in integrated circuit is needed to make receivers capable of receiving digital code television broadcast signals. The entire paper is completed with this installment.

AUTHOR: ZENG Jiku [2582 4764 4430]

ORG: None

TITLE: "Talking About Reliability Management of Electronic Products"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 7, Jul 79 pp 26-28

ABSTRACT: At present, the rate of loss of effect for electronic components made in China is about $10^{-5} \sim 10^{-6}$ times/hour and the average trouble-free operating life is about several tens to several hundreds hours. Compared with foreign made components, the difference remains very great. Most Chinese made instruments have series circuits, which are extremely difficult to repair. They take several tens of hours or even several days to repair, while advanced instruments made in foreign countries need only several minutes. According to experience in foreign countries, in order to improve reliability there must be strict scientific management, i.e. quality control of products. Processes and requirements of general management of production, product inspection, government agency and standard of reliability, production certification systems, and standards for selecting components are explained.

AUTHOR: FENG Xiancheng [7458 3759 2052]

ORG: None

TITLE: "Digitalized Automatic Frequency Measuring Detector Briefly Introduced"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 7, Jul 79 pp 29-31

ABSTRACT: For the purpose of effectively handling environments of high signal density, a radar detection device is required to be able to change the signals into digitalized data suitable for processing in a computer so that the signals can be quickly and automatically processed and anti-jamming measures can be taken as soon as threatening signals appear. Ordinary nonsearch type reconnaissance device, manually controlled by operators, does not send the radar information directly to a computer; therefore, is not fast enough to meet modern anti-jamming requirements. In foreign countries, radar reconnaissance device is extensively linked with automation, digitalization, and computer technologies. Three types of digitalized automatic frequency measuring detection devices are introduced as examples to explain the theory of digitalized automatic frequency measuring detectors.

AUTHOR: (1) None
(2) None
(3) WANG Rongchun [3769 2837 2717]
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(5) HONG Zhaozhen [2837 0340 1767]
(6) None

ORG: (1) Gansu Optical Instrument Plant; (2) Hongze Electronic Equipment Plant;
(3) Tianjin Broadcasting Materials Plant; (4) Dalian Engineering College;
(5) Shanghai Electronic Components Second Plant; (6) Anhui Radio Institute

TITLE: "Electronic Products"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in
Chinese No 7 Jul 79 pp 43-44. 36

ABSTRACT: Six short items are included to describe the applications, special characteristics, and major technical properties of the following products, manufactured by the respective organizations: (1) JCM-101 Analog Magnetic Tape Recorder; (2) RGC-2 Photoelectric Paper Tape Input Device; (3) BB-4 Wave Form Analyzer; (4) SBD-1 Digital Face Board Meter; (5) Precision Electrochemical Testing and Analyzing Instrument; (6) BTE-1 Semi-graphic Oscilloscope.

AUTHOR: None

ORG: None

TITLE: "Front, Inside Front, Inside Back, and Back Covers"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in
Chinese No 7, Jul 79 front, inside front, inside back, back covers

ABSTRACT: The front cover is a photo of the synthetic crystal machine shop of Beijing Chenxing Radio Instrument Plant. The inside front cover contains photos depicting a DG-6 closed circuit television equipment, made by Changzhou Third Electronic Instrument Plant for classroom teaching. Two photos show a teacher being photographed; one shows a student using a microphone to ask the teacher a question; one shows students in a classroom which has two DG-6 television sets instead of a teacher in person. One photo depicts a color television visual frequency alignment device successfully made by the Television Teaching and Research Office of Chengdu College of Telecommunications Engineering. One photo shows a console color television receiver, a new product of Shanghai Radio Third Plant. The inside back cover contains photos depicting new accomplishments of Chengdu College of Telecommunications Engineering, including an electronic computer system for controlling furnace temperature; a silicon microwave low noise transistor; a frequency spectrum testing instrument; 1-2 GHz, 50m W/CW echowave tube; and the Laser-holography Research Team of Physics Teaching and Research Office of the Sixth Department using a laser holographic instrument to match and identify finger prints. The back cover depicts a high precision display type x-ray crystal direction finder.

AUTHOR: YING Chongfu [2019 1504 4395]

ORG: Vice President, Institute of Sonics, Chinese Academy of Sciences

TITLE: "Ultrasonics Technology and Electronics"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 2-3

ABSTRACT: This paper explains the relationship between ultrasonics and electronics. The nature of ultrasonic wave is defined first, including the fact that it seldom exists naturally and is very different from audible sound. In order to either produce or detect ultrasound, it is necessary to convert the sonic signals into electric signals for measurement or other forms of processing; hence ultrasonics is dependent upon electronics. In the past decade, there appeared a new branch of ultrasonics, the sonic surface wave technology. With this, ultrasonic wave is incorporated into various electronic instruments, which are smaller in volume and more stable. In this new manner, ultrasonics has begun to contribute to electronics as well.

AUTHOR: TONG Zhipeng [4547 1807 7720]

ORG: General Engineer, Research Academy of Communications Engineering

TITLE: "The Structure of a Computer Network"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 3-4

ABSTRACT: In the 1960's, computer applications advanced very rapidly from the classical mathematical computation to business management, information storage, data search, material distribution, organizational administration, production control, etc. In order to enable a computer to carry out such diversified and dissimilar responsibilities, it has become necessary to separate its input output (I/O) operations from its applicational functions. Through various passes, the functional units are linked with the central processor. With several diagrams, the paper explains ways a central computer is linked with its communication equipment, control equipment, storage units, branch computers, etc. which are further linked with local and distant terminals to form a multi-leveled network for the purpose of performing all the different functions at once.

AUTHOR: LIN Weigan [2651 3634 1626]

ORG: Professor, Chengdu College of Telecommunications Engineering

TITLE: "Linking Theory With Practice for Mutual Promotion of Experimental and Theoretical Work Necessary in Microwave Technology"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 4-5

ABSTRACT: The historical development of the problem of three-dimensional versus two-dimensional microwave theory and the problem of elliptic waveguide is briefly reviewed in the paper to support the author's contention that in microwave technology, although research and resolution of theoretical problems are necessary, attention must be given to linking theory to practice and proposing theoretical problems from the reality of practice. When some problems cannot be resolved theoretically, experimental resolution must be sought. Experimental study of microwave technology must be promoted in China. On the one hand, tools of experiment should be modernized as much as possible; on the other hand existing tools and instruments must be fully utilized to cause old equipment to produce new results.

AUTHOR: WANG Shouju [3769 1343 6030]

ORG: Researcher, Institute of Semiconductors, Chinese Academy of Sciences

TITLE: "On the Development of Microelectronics Here and Abroad"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 p 5

ABSTRACT: In foreign countries, the rapid development of semiconductors in the past two decades has produced limitless microminiaturization. The recent application of gallium arsenide materials to the manufacture of ultra-high speed integration of logic circuits provides a hint of new leaps ahead. This development is linked with a foundation of modern industry, science, and technology, however. The author maintains that for the purpose of accelerating and stabilizing China's bases of industrial production of semiconductor integrated circuits, it is necessary to observe the fast changes of microelectronics abroad on the one hand, and to accumulate experience in techniques and management to create conditions for step by step development of increased microminiaturization in the future.

AUTHOR: TAO Shi [7118 2606-1709]

ORG: Assistant Professor, Northwest College of Telecommunications Engineering

TITLE: "Accelerating Radar Technology Development in China"

SOURCE: Beijing DIANJI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 p 6

ABSTRACT: This short paper is divided into three sections. The first section is devoted to the history of radar technology, from its origin during WW II to the 1960's, followed by several important changes to reach its important status of today. The second section is devoted to a discussion of the problems urgently in need of resolution if China is to develop a modernized radar technology, including the production and study of needed components. The third section discusses processes and problems in training persons skilled in radar technology. The author suggests a reform of the educational system to include some basic elective courses on radar, establishment of graduate specialty of four-year duration on radar, development of television, correspondence, and night schools, sending graduate students abroad, and organizing short-term training courses in universities.

AUTHOR: None

ORG: Shanghai Municipal Han-characters Data Processing System Output Team

TITLE: "Laser Printer"

SOURCE: Beijing DIANJI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 23-25

ABSTRACT: As electronic computers are developing toward high speed and large volume goals, a certain type of high speed printer becomes necessary. Due to the fact that the number and types of Han characters are very complex, the key type typing method is not suitable. The laser printer is one of the other forms under experimentation. It uses laser as the light source to record the character-data, after processed in the computer, onto photosensitive materials. It is a pressure-less printing equipment and the characters are printed either on ordinary or on special papers. The theory and structure of the laser printer are explained, and there are also several lines of Han characters printed on a laser printer and reproduced in the paper to serve as examples.

AUTHOR: ZHENG Jiyu [6774 4949 4416]

ORG: Northwest College of Telecommunications Engineering

TITLE: "Lock Phase Circuit and Its Applications: (II)"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 26-29

ABSTRACT: This installment of the paper contains chapters on frequency synthesis, microwave solid state source, regeneration of signals, supplying carrier frequency in carrier wave communication system, tracking and telemetry, and industrial applications. There is also a final chapter on future prospects of the circuit and its applications. The paper is completed with this installment.

AUTHOR: WU Qingshan [0702 1987 1472]

ORG: None

TITLE: "Reliable Design of Large Area Printed Board for Plugging Components"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 32-34

ABSTRACT: At present, digital electronic computers use two types of printed boards: the double-faced and the multi-layered. Although both types are serviceable under ordinary conditions, for improving reliability and ease of maintenance, the selection of the type of printed board for computers to be used under special conditions becomes a problem. Practice has proved that the adoption of large area double-faced printed board is an important measure for improving reliability of the entire computer. The major bases for supporting the above conclusion and related problems of designing this type of printed boards form the contents of this paper.

AUTHOR: DI Jiusi [3695 0036 1835]

ORG: 1129 Institute

TITLE: "Storage of Visual Frequency Signals--Scanning Transform: Introducing Silicon Target Signal Storage Tube"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 35-38

ABSTRACT: Photo-image storage tube is an important and indispensable type of components in modern image processing technology. Based upon input and output data, this type of components may be divided into image-taking storage tube, image-displaying storage tube, signal storage tube (or scanning transform tube), and direct-viewing storage tube. Of the four, the signal storage tube is the most extensively applied. It proceeds to store the input visual frequency signals and its output is also visual signals. This paper describes its structure, and the forms of its work process. There is also a chapter analyzing the related parameters which determine the quality of its signal storage and scanning transform capabilities.

AUTHOR: (1) DUAN Pei [3006 3099]
(2) YANG Guochen [2799 0948 3819]

ORG: (1) Changsha Semiconductor Materials Plant; (2) Hebei College of Engineering

TITLE: "Discussion of Problems"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 8, Aug 79 pp 39-41, 48

ABSTRACT: This regular department of the journal contains two papers concerning vortex defects of single crystal of silicon. The first "Comments on the Silicon Single Crystal Vortex Defects Si_4C_4 Model" raises differences of opinion concerning an original paper by the second author ["Formation Mechanism and Method of Elimination of Vortex Defects in Silicon Single Crystal" DIANZI KEXUE JISHU No 4, 78, 4] while the second paper "It Would be the Best to Start Experimental Research Concerning the Problem of Vortex Defects" contains replies to the comments. The differences between the two concern primarily the importance of multiplicity of factors in the defects formation, including the carbon action, the action of the crystallization process, the carbon diffusion coefficient, and the difference between A and B types of defects.

AUTHOR: YANG You [2799 2881]

ORG: Professor, Shanghai Jiaotong University

TITLE: "Ship Engineering and Electronics"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 p 2

ABSTRACT: When radio was installed on ships in the beginning of this century, signals could be sent by ships in distress to ask help from nearby vessels and the days of pirates were gone forever. However, extensive application of electronics in ship engineering is a matter of the last decade only. The development of microcomputers has enabled ships to have endless varieties of automated instruments. A large cargo ship required more than 50 seamen to operate, today, 20 or a dozen persons are sufficient. In the not very distant future ships without operators will sail the sea to carry out various predetermined jobs of cargo transport, probing, reconnaissance, and patrol. All the jobs will be performed by electronic instruments instead of men.

AUTHOR: SHENG Yangao [6774 5888 2640]

ORG: Professor, Nanjing College of Aviation

TITLE: "Electronics and Modern Aviation"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 2-3

ABSTRACT: Although aviation is but a 20th Century phenomenon, its development is so fast that manned and unmanned craft have flown out of the earth's atmosphere to reach the moon and other planets. The development of aviation technology is inseparable from achievements of electronics, however. All problems of aviation have and will be resolved by electronic technology. Among these problems, there are the problem of manufacture and operation of aircrafts, the problem of flight guidance, the problem of communication between an aircraft and the ground surface, and the problem concerning radar development. There is a brief discussion of each of these problems in the paper.

AUTHOR: YU Baochuan [0205 1405 0278]

ORG: Professor, Beijing Industrial College

TITLE: "Remote Control and Telemetry"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 3-4

ABSTRACT: The development of remote control and telemetry is inseparable from the development of guided missiles. The advantages of guided missiles over traditional cannons and bombs are discussed in detail in the paper. On the other hand, techniques of remote control and telemetry have been quickly developed due to their military, especially guided missiles, application and these techniques have been extended to civilian applications. In some areas, such as anti-interference property, improvement remains necessary in remote control and telemetry, and new areas of application should continue to be opened up for these technologies to contribute to the Four Modernizations of the country.

AUTHOR: WANG Zongpei [3769 1350 1014]

ORG: Professor, Harbin Industrial University

TITLE: "On Miniature Electric Motors"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 4-5

ABSTRACT: The miniature and special electric motors used in automatic control systems are generally called micromotors. They are instruments for the delivery or transfer of either data or energy. They generally include ordinary miniature D.C., asynchronous, synchronous, and magnetic motors, rotary transformers, and many others. In the early stage, they were developed mostly on the basis of the traditional structure of electrical motors, but many changes have occurred since the 1960's. China has had 20 years of history of producing micromotors and a relatively large scale specialized industry has been established, but in the quantity and quality of the products as well as in the level of work procedures, there remains a distance for China to catch up those of foreign countries. The needed improvements are discussed.

AUTHOR: FAN Chan(xin [2868 2490 0207]

ORG: Assistant Professor, Northwest College of Telecommunications Engineering

TITLE: "Developmental Tendency of Communications Technology"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 5-6

ABSTRACT: At present, it appears that communications technology is on the verge of a revolutionary change. It is not a problem of evolution, because some new concepts and new procedures have begun to be introduced and a fundamental change is bound to occur. The contents of the change are discussed in the paper in its two aspects: (1) The development and application of large scale integrated circuits and computer technology. The integrated communications equipment has been extended to the microwave band. For example, the solid state 12GHz used to transmit television signals measures only 20 x 11 x 12cm³ and weighs only 2.7 kg. (2) Appearance of new transmission procedures will include extensive use of artificial satellite relay and optical fiber communications.

AUTHOR: YOU Zhongqiang [3945 0022 1730]

ORG: None

TITLE: "Solid State Cameras"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 7-11

ABSTRACT: In structure, solid state cameras may be divided into two types: One is used for numerical recognition, facsimile transmission, and aerial reconnaissance. The other is CID [charge-injection device] image sensing cameras. This paper describes the structures of several representative designs of each type. All these are in the process of being developed. It is the author's opinion that in the not very distant future, solid state, miniature cameras and facsimiles will appear, entirely comparable in quality with existing large machines.

AUTHOR: YUAN Renchang [5913 0088 2490]

ORG: Northwest College of Telecommunications Engineering

TITLE: "A New Type of High Efficiency Amplifier"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 16-18

ABSTRACT: This paper describes a type of so-called G category amplifiers. These amplifiers divide input signals into several amplitude ranges. When the signal is low, the amplifier feeds power from a lower voltage of power source. As the signal increases, the amplifier automatically turns to a higher voltage power source to feed electricity. In the past few years, several practical circuits of this type of amplifiers have appeared. These are described; circuit diagrams are included.

AUTHOR: SUN Jing [1327 7231]
WU Junzhuo [3382 0689 0587]

ORG: Both of Beijing University

TITLE: "Design Equations for 2-N Advance Counter"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 19-23

ABSTRACT: Counters are mostly used for counting numbers and frequency division. With the rapid development of integrated circuits, counters are being extensively applied in digital control technology, frequency synthesis technology, etc. This paper gives the design equations for the common 8421 accumulative counter, i.e. the typical 2-n advance counter. These equations provide a favorable condition for further integration of this type of counter. Finally, the problem of self-starting of the counter is discussed. This problem is important when the counter is used for frequency division.

AUTHOR: ZHUANG Guoming [8369 0948 2494]

ORG: Shandong Zibo Radio First Plant

TITLE: "Far Infrared Radiation Heat Drying Technique"

SOURCE: Beijing DIANZI XUEJIE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 29-32

ABSTRACT: Far infrared radiation heat drying is a new technique developed in recent years. When a far infrared component is heated by a certain fuel, which may be coal, gas, oil, electricity, residual heat, or solar energy, the wave length is above $2.5 \mu m \sim 50 \mu m$, which can be resonantly absorbed by a material to excite vibration and rotation of molecules to cause an increase of energy, which is directly transformed into heat energy to obtain the drying objective. This new technique is especially suitable for organic materials, high molecular materials, and other materials having a high moisture content. The drying process is fast; the fuel consumption is low; the equipment is simple and low cost; it is sanitary and harmless to men and animals. The theory of this drying process, the structure of the ceramic far infrared component, and its many applications actually in use [in Sichuan Rubber Plant, for example] are given.

AUTHOR: ZHOU Zhengliang [0719 4453 5328]

ORG: None

TITLE: "A New Type of Very Hard and Abrasion Resistant Cutting Tool--The Silicon Nitride Cutting Tool"

SOURCE: Beijing DIANZI XUEJIE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 34-35

ABSTRACT: For the purpose of resolving the problem of cutting and machining hard steel and other very hard and abrasion resistant materials, extra-hard cutting tools have been the object of study here and abroad. In China, on the basis of making titanium carbide hard alloy, aluminum oxide ceramics, metallic ceramics, boron nitride cutting tools, a new type of cutting tool has been added most recently. It is the silicon nitride ceramic cutting tool. Experimental studies of several years have demonstrated that the cutting tool made of this new material has many superior properties. Numerous test results are reported.

AUTHOR: WANG Guyan [3769 6253 1484]

ORG: Institute of Biophysics, Chinese Academy of Sciences

TITLE: "Brief Discussion on Data Bionics"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 36-38

ABSTRACT: Data bionics studies data reception, storage, processing, and utilization between a living body and its external environment, between individual living bodies, and among various parts of a living body. Data bionics also studies the method of transplanting these processes into technology to make, finally, computation and automatic control systems that are similar to the organic system having perfect properties. The contents of study of data bionics include communications between cells and within a cell, between animals, the storage and retrieval of communicated data, simulation of sensory organs, and artificial intelligence. These contents are clarified in the paper.

AUTHOR: (1) Wei Xinlin [7614 2946 2651]
(2) Jin Hua [6930 5478]
(3) CHEN Bingwei [7115 3521 1014]
(4) None

ORG: None

TITLE: "Electronic Products"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 pp 42-43, 23

ABSTRACT: Four items are included in the paper: (1) portable scanning electron microscope: It is made by Shaanxi State-operated Jianguang Machine Plant. It is small, easily repaired, and of stable property, and may be extensively used in industries and laboratories. (2) large heat dispersing graphite grid rings: They are made by State-operated Jinhua Electron Tube Plant. The largest measures 350 mm in height and 175 mm in maximum diameter. It is the largest in China, at present. (3) 2DGL series high frequency high voltage silicon pile: It is made by Guangdong Zhongshan Radio Second Plant, and entirely satisfies the requirements of transistorized black and white and color television receivers. (4) Carbon-14 radiation pollution detector: It is made by Cuanyun County Radio Plant of Jiangsu Province. It is small, highly sensitive, and consumes very little electricity.

AUTHOR: None

ORG: None

TITLE: "Front, Inside Front, Inside Back, and Back Covers"

SOURCE: Beijing DIANZI KEXUE JISHU [ELECTRONIC SCIENCE AND TECHNOLOGY] in Chinese No 9, Sep 79 front, inside front, inside back, back covers

ABSTRACT: The front cover is a photo of Professor JIN Youxun [6855 2589 1575], the assistant chief of the library of Northwest College of Telecommunications Engineering. The inside front cover contains photos of various products made by Northwest College of Telecommunications Engineering, including the self-adjusting digital telephone, a new type of long distance communication system, and an automatic photoelectric colormeter. The inside back cover contains photos of 7 calculators made in Japan, including a scientific calculator, a ballpoint pen calculator, a calculator with memory, a table-top calculator, an ultra-thin calculator, a lighter calculator, and a calculator capable of memorizing 21 telephone numbers. The back cover contains photos of two products of Xi'an Radio Eighth Plant, including the JT 75-1 laser elliptic thickness measuring instrument, and the cold atom fluorescent mercury detecting instrument.

6168

CSO: 4009

AUTHOR: LIU Gaolian [0491 7559 5114]

ORG: Shanghai College of Mechanics

TITLE: "Generalized Variational Principles, Variational Principles, and Dual Extremum Principles of Gasdynamics for the Direct Problem of Turbomachine Airfoil Cascades on an Arbitrary Stream Sheet of Revolution"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79 pp 303-314

TEXT OF ENGLISH ABSTRACT: The present paper is devoted to the search for variational principles for the direct aerodynamic problem of channels and aerofoil cascades (with prescribed distributed mass injection or/and suction along the profile contours for blade cooling or boundary layer control) on an arbitrary stream sheet of revolution and aimed mainly at providing a rigorous and sound theoretical basis for introducing and widely applying the finite element method to computational aerodynamics of turbomachines. Three generalized variational principles (among which two are for homoentropic flow, and the other for nonhomoentropic flow) are developed first, and then from successive transformations. Furthermore, for homoentropic subsonic flows a pair of dual extremum principles are also shown to exist.

[continuation of LIXUE XUEBAO No 4, 1979 pp 303-314]

Special attention is paid to taking full advantage of 2 effective means: "natural boundary conditions" and "artificial boundaries," in order to greatly simplify the numerical treatment of various boundary conditions characterizing the complexity of the cascade problem. So in all variational principles all boundary conditions have been converted to natural ones.

The variational principles presented here can be used to advantage as basis also for variational-finite difference method and for various direct variational methods (e.g. Ritz's method, Kantorovich's method, etc.)

This paper was received for publication on 26 Feb 78.

AUTHOR: CHENG Jiagang [4453 1367 4854]

ORG: Institute of Mechanics, Chinese Academy of Sciences

TITLE: "Calculation of Unstarted-Choked Regime of Supersonic and Transonic Compressor Cascades"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79 pp 315-322

TEXT OF ENGLISH ABSTRACT: This paper studies unstarted-choked regime of supersonic and transonic cascade, such regime is important for the starting process and offdesign regime.

A semiempirical method is given here, which allows for calculating operating incidence of this regime. Under the condition of downstream throttle, or at various axial velocity density ratio, this method also gives useful results. Other performance parameters, such as total pressure loss, pressure ratio, and flow deviation angle may be obtained simultaneously.

In comparison with other works, the method presented here considers more variation of condition. The calculating results obtained show this method is reliable. Because this method is more simple and convenient, it may be adopted to analyze the aerodynamic performance of cascades and the influence of geometric parameters and dynamic parameters on cascade performance.

This paper was received for publication on 3 April 78.

AUTHOR: ZHANG Diming [1728 3321 2494]

ORG: Zhongshan University

TITLE: "Pitching and Heaving of the Planing Plate With High Speed in Regular Waves"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79 pp 323-332

TEXT OF ENGLISH ABSTRACT: When a glider runs over waves, unsteady motions of pitching and heaving are produced. In this paper, these unsteady motions for a two dimensional planing plate in regular waves are investigated, and formulas for calculating hydrodynamic forces to the accuracy of F^{-2} (F is the Froude number) are derived. For planing plate, with a certain load and in a certain planing state, the author suggests a system of algebraic equations to compute the amplitudes of pitching and heaving caused by coming waves.

This paper was received for publication on 26 Apr 78.

AUTHOR: XU Jianjun [1776 1696 6511]

ORG: Institute of Mechanics, Chinese Academy of Sciences

TITLE: "A Mathematical Modeling of Dynamical Process of Chemical Transport"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 333-343

TEXT OF ENGLISH ABSTRACT: The method of chemical transport has gained considerable attention in the research fields of crystal growth, chemical engineering, metallurgy, etc in recent years. Its principle has been very widely utilized in many technological processes. However, in contrast to this situation, theoretical study on dynamics of chemical transport is not quite so sufficient.

The present paper deals with dynamical process of chemical transport. A theoretical analysis is carried out, a mathematical model is constructed, and the governing equation is solved by using the method of Laplace transformation. Thus, with the results of this paper, it is not difficult to calculate the transport rate of the source material and the free deposition rate of the solid production on the wall of the tube; to determine the position of starting deposition L^* and the concentration distribution of gaseous species in the tube. This paper was received for publication on 26 Sep 77.

AUTHOR: DU Xu [2629 3800]
WEI Zhonglei [7614 0022 4320]
LI Wenxuan [2621 2429 4821]
WANG Jiajun [3769 1367 3182]

ORG: All of Beijing University

TITLE: "The Numerical Computation for Diffraction and Reflection of a Traveling Shock Wave From an Open End of a Shock-Tube"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 344-352

TEXT OF ENGLISH ABSTRACT: When a shock wave travels into atmosphere from an open end of a shock-tube, an over-pressure field is induced and wave diagrams of shock diffraction and reflection form immediately. In general, one can always compute the outflow problem by solving the unsteady two-dimensional gasdynamic equations. Computing this problem numerically, the authors take advantage of Eulerian coordinates, fictitious viscosity and finite difference method. In order to decide the boundary conditions for computation at the end of tube, first we find out analytical solution for the unsteady one-dimensional flow in a shock-tube, and then the variations of the velocity, pressure, and density of the flow at the open end of the tube with time. The present numerical results are in agreement with the experiments.

AUTHOR: HU Haichang [5170 3189 2490]

ORG: None

TITLE: "Energy Methods and Local Effects"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 353-359

TEXT OF ENGLISH ABSTRACT: Local effects in the theory of elasticity are divided into two kinds in this paper. The one is induced by small rigidities and the other by small flexibilities. It is pointed out that these two kinds of local effects are essentially related to the principle of minimum potential energy and the principle of minimum complementary energy respectively. The main conclusion of this paper are as follows. When a problem of the theory of elasticity is formulated in variational principles, rigidities enter into functional of potentially energy as parameters, and flexibilities enter into the functional of complementary energy as parameters. When one of these parameters approaches zero, the corresponding functional may degenerate such that the class of admissible functions is enlarged. When the solution of the degenerate problem consists of admissible functions of the original functional, there is no local effect. In this case, the solution of the original problem approaches uniformly to that of the degenerate problem as the parameter approaches zero. When the solution of the degenerate problem is not admissible in the original functional, there are some local effects.
This paper was received for publication on 18 Dec 78.

AUTHOR: FANG Tong [2455 0681]

ORG: Northwest Industrial University

TITLE: "Antiresonances in Multi-Degree-of-Freedom Systems"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 360-366

TEXT OF ENGLISH ABSTRACT: In this article various conditions of antiresonances in multi-degree-of-freedom mechanical systems are discussed. The mechanism of antiresonances, in particular the transfer antiresonances, is explained. The results obtained are useful for a deeper understanding of characteristics of mechanical vibrations.
This paper was received for publication on 15 Nov 77.

AUTHOR: LI Suxun [2621 4790 1789]

ORG: Beijing Institute of Aerodynamics

TITLE: "A Method on the Design of Contraction Ducts"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4 Oct 79
pp 367-373

TEXT OF ENGLISH ABSTRACT: In this paper a procedure is developed for the design of contraction ducts, using solutions based on separation of variables for the stream function equations of incompressible axisymmetric potential flow.

A new type of axial velocity distribution function is suggested. Under a wide range of contraction ratios, this function can be used to greatly reduce the length of ducts and provide a high quality of flow, such as small adverse pressure gradient near the wall at entrance, uniformity and parallelism of the flow at exit and freedom from separation in the whole flow field, etc.

By using this method, a shallow octagonal form contraction duct of a wind tunnel with contraction ratio 13.025 was designed, built, and tested. Theoretical calculations are compared with test results, they show good agreement. In the present case the adverse pressure gradient is so small that no perceptible region of separation is observed. The velocity distribution at entrance, exit, or on the wall is perfectly satisfactory. The maximum non-uniformity in the exit velocity distribution is less than 0.4 percent.

This paper was received for publication on 16 Mar 79.

AUTHOR: SHA Jinxuan [3097 6855 3551]

ORG: Nanjing Hydraulic Engineering Research Institute

TITLE: "Two-Dimensional Unsteady Flow of Groundwater at the Horizontal Plane"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4 Oct 79
pp 374-379

ABSTRACT: Under the condition of identical medium in all directions, with slowly variable seepage and stable flow speed along the vertical direction, the two-dimensional unsteady seepage has the following basic equation:

$$\frac{\partial}{\partial x} \left(h \frac{\partial H}{\partial x} \right) + \frac{\partial}{\partial y} \left(h \frac{\partial H}{\partial y} \right) - \frac{\mu}{K} \frac{\partial h}{\partial t} - \frac{\xi}{K} = 0$$

where, K is the seepage coefficient (m/day); μ is the water supply; ξ is ground water evaporation (m/day); h is the distance from the impervious layer to the free surface (m); H is the head computed from the standard plane. With computation, the author demonstrates that the drainage of a square field is a typical two-dimensional problem. The distance between two drainage ditches may be $\sqrt{2}$ times greater than that which obtained through the use of equations for one dimensional flow. A considerable area of the field may thus be saved.

AUTHOR: REN Fuyao [0117 4395 1031]
LIU Chaorong [2692 0340 2837]

ORG: Both of Fudan University

TITLE: "Pressure-Step Transmission in a Complex Piping System"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 380-384

ABSTRACT: This paper utilizes a linearized model of the momentary state theory of an ideal flowing body to proceed with an analysis of the transmission characteristics in a dispersed piping system with step-increased pressure. This condition is relatively common in reality. This paper was received for publication on 19 Jul 78.

AUTHOR: RONG Sheng [2837 7105]

ORG: Institute of Mechanics, Chinese Academy of Sciences

TITLE: "Magnetohydrodynamic Flow in an Annular Channel of Finite Length"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 385-389

ABSTRACT: In an annular pipe or channel of finite length, under the action of the magnetic field of the direction of the axis and the electrical field of the radial direction, a viscous conductive fluid is not only in a circular flow, but also in a flow within the meridian plane due to the effect of the axial boundary. This is called a secondary flow. The magnetohydrodynamic flow in an annular channel is a nonlinear problem. This paper uses numerical method to compute the process of irregular start. After the various physical quantities are fixed with respect to time, a solution of the regular flow is obtained. The effect of the secondary flow on the velocity of the main flow (the circular flow) is also discussed. This paper was received for publication on 1 Mar 78.

AUTHOR: XIAO Yelun [5135 2814 0243]

ORG: Beijing Aeronautical Institute

TITLE: "A Method of Sectionalization and Averaging for Calculating the Natural Frequencies and Normal Modes of Uncoupled Bending Vibration of a Nonuniform Beam With Arbitrary Boundary Conditions"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79 pp 390-394

ABSTRACT: In reality, the sectional averaging method is to simplify a continuous and nonuniform beam into several uniform sections. A free vibration characteristic equation is established according to the continuous condition between two adjacent sections and the boundary condition of the two terminals of the beam. When this equation is solved, the natural oscillation frequencies and the normal modes of vibration may be obtained. In order that the computation equations and their corresponding computer programs may be generally applicable, an attempt is made to cause the oscillation characteristic equations under various boundary conditions (forms of support) of the beam to be completely uniform. This paper was received for publication on 28 Nov 77.

AUTHOR: WANG Yunzhao [3769 0061 6856]

ORG: Institute of Engineering Mechanics, Chinese Academy of Sciences

TITLE: "The Magnification Factor of Eccentricity in Coupled Translational and Torsional Response of Structures Under Earthquakes"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79 pp 399-403

ABSTRACT: At present, there are relatively few methods of computation for the torsional moment of force of earthquake in the study of earthquake response of structures. This paper studies the problem of response of structures to earthquake action when these structures have static eccentricity, that is to say the center of rigidity does not coincide with the center of mass. A method of computing the eccentricity of the motive force is proposed. This paper was received for publication on 15 Feb 78.

AUTHOR: HUANG Yuying [7806 3768 4134]

ORG: Central China Institute of Technology

TITLE: "Stability and Vibration of Rectangular Plates of Variable Thickness"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 395-398

ABSTRACT: In recent years, many scientists have studied the use of finite strip method to resolve various problems of rectangular plates. Practices have proved the effectiveness of this method. This paper proposes a method of dividing and separation to cause each unit of a rectangular plate of variable thickness to become a strip of equal thickness for the purpose of simplifying the computation.

This paper was received for publication on 12 Jun 78.

AUTHOR: YAO Weida [1202 0251 6671]
ZHANG Huijuan [1728 1979 1227]

ORG: Both of Shanghai Institute of Nuclear Research, Chinese Academy of Sciences

TITLE: "Correlation Function in the Analysis of Random Vibration"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 404-409

ABSTRACT: A correlation function is the use of correlation time τ as the time representation to describe a random process, but when the function is being applied, its physical meaning is often not clearly and precisely explained. This paper uses a single degree of freedom linear system of finite bandwidth white noise excitation as an example to derive the solution to the exponentiation of correlation functions. The physical meaning each coefficient is discussed on the basis of the basic characteristics of the correlation functions in a manner to broaden the work of KANDIANIS, F. (JOURNAL OF SOUND AND VIBRATION Vol 36, 1974 pp 207-223.)
This paper was received for publication on 8 May 78.

AUTHOR: YANG Changren [2799 2490 0088]

ORG: Nanjing Aeronautical Institute

TITLE: "Electrofield Torque Due to the Offset of the Envelop Assembly in an Electrostatic Suspended Gyroscope"

SOURCE: Beijing LIXUE XUEBAO [ACTA MECHANICA SINICA] in Chinese No 4, Oct 79
pp 410-413

ABSTRACT: This paper proposes methods of computing the moment of interference of electrofield created by horizontal or vertical offset of the envelop assembly. With respect to electrostatic suspended gyroscopes, this is a very serious problem. In order to improve the precision of the electrostatic gyroscope, methods must be found to limit the error caused by a deviation of the envelop assembly.
This paper was received for publication on 21 Nov 77.

6168
CSO: 4009

New Developments

AUTHORS: MA Huilin [7456 1920 2651]
WU Peiyu [0702 1014 1342]

ORG: None

TITLE: "Recent Developments in Continuous Casting"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 1-3

ABSTRACT: In continuous casting mills, steel is poured and rolled in one continuous process. An example is the Wuhan Steel Company's mill. Continuous casting mills can produce up to 1.5 million tons of rolled steel a year, using furnaces with capacities of 200-300 tons. The maximum thickness of the slabs produced is 2640 millimeters, with lengths up to 1,300 meters. Large numbers of furnaces can be used to supply one casting mill. Modern mills can roll a wide variety of products rather than being limited to a few types. Future trends will include larger sizes, higher speeds, greater continuity, and automation.

AUTHOR: MA Huilin [7456 1920 2651]

ORG: None

TITLE: "The World's Largest Blast Furnace"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 3-4

ABSTRACT: The largest blast furnace in the world belongs to Nippon Steel and has a capacity of 5,070 cubic meters. It is 110-120 meters tall and 17 meters thick at its widest point. Its daily output is 10,000 tons, which means 360 tons a year of crude iron or 300 tons a year of steel. Each charge takes 15,000-20,000 tons of iron ore. The blast furnace took 20 months to build and is expected to run continuously for 10 years before major overhaul. Many specialists believe that the maximum possible size of a blast furnace is somewhere between 5,000 and 6,000 cubic meters.

AUTHOR: YA Ping [0068 1627]

ORG: None

TITLE: "Electronic Shaping of Metals"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 p 5

ABSTRACT: It has been discovered that an electric current passing through a metal increases its plasticity and ductility considerably. This is the so-called "electroplastic effect." The effect is not fully understood, but in general the resistance to deformation comes from the free electron cloud which surrounds the metal atoms; an electric current passing through the metal reduces the deformation resistance produced by the cloud by influencing its movement. In experiments with the drawing of copper wire, it was found that a change in the direction of electric current flow produced an increase of 10-15 percent in resistance to deformation. One practical use is in the machining of hard-to-work metals such as tungsten alloys. In one case, a combination of the electroplastic effect and ultrasonic processing made it possible to contract a tungsten alloy by 88-87 percent.

AUTHOR: None

ORG: Group 201, Institute of Telegraph Transmission

TITLE: "Facsimile: Science's Great Far-Seeing Eye"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 10-11

ABSTRACT: Facsimile is an effective method of transmitting images (including images of a printed page) by wire. Similarly to television, the facsimile instrument scans the original and breaks it down into individual black and white points, which are sent sequentially in the form of pulses or their absence. The receiver converts the electrical impulses back into a light pattern, and using the same scan as the transmitter it reconstructs the image. Facsimile is used to transmit photographs, newspapers, documents, weather maps and many other types of information; mission in color is possible. The resolution is determined by the number of scan lines per inch.

AUTHOR: WANG Weiqi [3769 4850 3825]

ORG: None

TITLE: "Superconducting Magnets and Their Uses"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 12-13

ABSTRACT: Natural magnets have a relatively low field strength. This can be bettered by electromagnets, but as the current used to produce the field increases, power losses become prohibitively great. The highest manmade magnetic fields can be produced by using superconducting magnets at very low temperatures. These produce strong, stable magnetic fields without the power loss associated with electromagnets. Among the uses of superconducting magnets are: in bubble chambers for particle research; in magneto-hydrodynamic generators for power production; and in high-power electromagnetic motors for various military and other uses. A wide range of other uses, from magnetic-suspension trains to particle shields for spacecraft, industrial ore separation and electronics applications, are outlined.

AUTHORS: LI Huan [2621 6703]
GAO Jian [7559 1696]

ORG: None

TITLE: "Modern Birth Control Techniques"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 18-21

ABSTRACT: The best-known birth control medicines are various hormones which prevent conception. Variants have been developed in China and elsewhere which need be administered only once a month rather than daily. In addition, slow-acting forms implanted in the skin or the uterus release the necessary drugs gradually. Various spermicidal preparations have also been tried. The IUD has had considerable success, particularly when it contains copper which it slowly releases. Substances which suppress male fertility include preparations from raw cottonseed oil and a number of other drugs that have been prepared abroad. Tubal ligation is also used. Hormones are available which can terminate a pregnancy in the very early stages. A new and promising approach is the immunological one in which antibodies are created and prevent conception.

AUTHOR: WU Jinghu [0702 4842 6233]

ORG: None

TITLE: "Decreasing Construction Weight: Introducing a Framed Light-Panel Building"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 79 pp 22-23

ABSTRACT: With one out of every six trains and one out of every three trucks on China's railroads and highways carrying construction materials, it is important to decrease the weight of construction elements; this will also help in earthquake engineering. Large-panel construction has already decreased building weight to 0.7-1.0 tons per square meter, and the new frame and light panel construction may reduce it to 0.6-0.6 tons. Gypsum board, rock wool board, plastic board, pressed grass fiber board and plastic wall paper are of use for interiors. The Guangxi Institute of Construction Science and the region's No 2 construction company have designed a new experimental building (6 stories) with 7,085 square meters of space. It is supported by hollow tubular pillars made of reinforced concrete and uses a framework made of reinforced concrete beams. Foamed concrete panels are used for the exterior. It is expected that the building will be not only light and earthquake-proof but easy to assemble. The materials will be easier to prepare, since large panels are more readily fabricated than such materials as brick.

AUTHOR: YANG Jieting [2799 2638 0080]

ORG: None

TITLE: "Opening the Door to the Treasures of the 'Ancient Submerged Mountain Oilfields'"

SOURCE: Beijing KEXUE SHITAN [SCIENTIFIC EXPERIMENT] in Chinese No 8, Aug 79 pp 24-27

ABSTRACT: The Renqiu [0117 6726] "ancient submerged mountain" oilfield, discovered in 1975, is the first oilfield discovered in a carbonate deposit, has the thickest reservoir rock yet discovered in China, and is the most productive field: average output in the first year was more than a million tons per well; the highest producers reached a daily output of 3,000 tons. The "ancient submerged mountains" were a sea bottom in Sinian time, underwent gradual uplifting in the Paleozoic and more rapid uplifting in the Mesozoic, with the carbonate rock from the sea bottom becoming full of cavities and accordingly good reservoir rock. Subsidence occurred during the Tertiary and the mountains were again under water, where sediment provided cap rock to trap hydrocarbons that collected in the carbonate rock. The fields of Taqing, Shengli and Daxiang, like all previous oilfields, were Mesozoic and Recent continental sandstone reservoirs; Renqui represents a whole new range of prospects, being carbonate rock of the Paleozoic and Sinian.

AUTHOR: None

ORG: None

TITLE: "New Areas of Science and Technology"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 40-41

ABSTRACT: The following scientific and technical developments are described:
1. A Mossbauer spectrograph developed by Nanjing University; 2. A new composite fiber developed by the Shanxi Woven Textile Machine Plant and the Shanghai Textile Engineering Institute; 3. The DY-1 roller-type large radius measuring instrument, developed by the Tool Institute of the First Ministry of Machine Building; 4. a speech processor for use with radio transmitters, developed by the South China Institute of Engineering, Peking Plant No 761 and the Central Broadcasting Industry Agency; 5. colored cement developed by the Peking Institute of Cement Science; 6. an automatic cement injector complex for well construction; 7. an automatic fire detector (ion and heat sensor) and fire extinguishing system.

AUTHOR: TIAN Guoliang [3944 0948 5328]

ORG: Institute of Geography, CAS

TITLE: "Field Determination of Spectral Characteristics of Ground Objects"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 42-43

ABSTRACT: In contrast to aerial photography, remote sensing generally concentrates on the spectral and polarization characteristics of earth objects. A sensing system generally consists of a light collector, a diffraction system, a detection system, an amplification system and a recording system. Spectral characteristics of objects may be determined in the field by comparison with a known (white) object placed next to the object in question, by measurement of absorption and reflection of known sources, or by absolute measurement of the reflection spectrum. Such measurements are useful in determining the wavelengths to be detected by remote sensors: certain bands are useful for detecting and distinguishing plants, others for examining water bodies and detecting pollution, and still others for recognizing rock types.

AUTHOR: ZHANG Yongqian [1728 3938 6197]

ORG: None

TITLE: "Electrical Discharge in a Liquid"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 45-46

ABSTRACT: An electric discharge in a liquid can be produced by a voltage of 1,000 to several hundred thousand volts, which is easily attainable with a simple capacitor circuit. Because the fluid is incompressible, such a discharge produced strong shock waves. These are used in geological prospecting by boats which tow a cable terminating in a discharge device; pulses reflected from buried geological formations allow their structure to be interpreted. The pulses can also be used in breaking up rock, forming and welding of metals, automatic aircraft landing systems and automatic traffic control, among other uses.

AUTHOR: Niu Ronghua [3662 2837 5478]

ORG: None

TITLE: "The Uranium Armor-Piercing Shell: A New Type of Antitank Weapon"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 pp 47-48

ABSTRACT: Because it has a much higher density than other common metals, including lead, uranium is useful in armor-piercing shells. Even a 25-mm automatic cannon shell can pierce 50 mm of steel at 460 meters. An arrow-shaped armor-piercing projectile is particularly effective; in addition to being favorably shaped for piercing armor, it bursts into flame as it passes through the armor, creating a high pressure. If a projectile has a hole bored through it down the middle, the uranium along the hole may burn, producing a ramjet effect which accelerates the shell. Uranium is hazardous both radiologically and as a chemical poison (although depleted uranium is used). In addition, it burns in air or may even explode at under 200° C, and accordingly it must be stored in mineral oil. The United States plans to produce a million uranium projectiles; in addition the US Navy plans to make use of them.

AUTHOR: None

ORG: None

TITLE: "Beautiful and Variegated Highway Bridges"

SOURCE: Beijing KEXUE SHIYAN [SCIENTIFIC EXPERIMENT] in Chinese No 8,
Aug 79 inside front and back covers

ABSTRACT: Photos and brief descriptions of the following bridges are given:
Yiyang [1707 7122] bridge, Jiangxi; Shuixiang [3055 6743] bridge, Jiangsu;
Qin'e [7230 0618] Ferry bridge, Guangxi Zhuang Autonomous Region; Luding
[3472 1353] suspension bridge, Sichuan; Quan [2164] River bridge, Anhui;
Heshangjing [0735 1424 3193] bridge, Shanghai City; Fenghuangtai [7685 0420
0669] bridge, Shandong; Chuanxi [1557 6007] No 3 bridge, Sichuan; Yangtze
River bridge, Nanking; Lanjiang [7061 3068] bridge, Zhejiang; Baodai [1405
1601] bridge, Jiangsu; Xieli [2438 3468] bridge, Shanghai; Jiuxigou
[0046 3005 3297] bridge, Sichuan.

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CSO: 4009

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TITLE: "Self-Decorated Dislocations in Nd-Doped YAG Crystals"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3,
Aug 79 pp 183-189

TEXT OF ENGLISH ABSTRACT: Climb movement and self-decorated dislocation occur easily in Nd-doped YAG crystals due to high melting point and degree of doping. Ultramicroscopy was used to observe different types of dislocations: straight, zigzag, helical and looped. The decorated processes are revealed by high temperature. It is concluded that the propagation of dislocations is caused by doped and precipitated particles.

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TITLE: "A Preliminary Study of Our Country's Ancient Tianmu Pottery"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3,
Aug 79 pp 190-200

TEXT OF ENGLISH ABSTRACT: A total of 21 Tianmu ware specimens dating from the Eastern Han through Yuan dynasties and from 17 different locations were subjected to external observation, chemical constituent analysis, firing temperature estimation and water absorption and microstructure analysis. Preliminary conclusions about the development of the pottery, raw materials used, firing conditions and microstructure are made. A preliminary study is made of the "Oil Drop" glaze of Shanxi Province and the "Rabbit Hair" glaze of Fujian; photomicrographs of the structure of these glazes and a discussion of the mechanism of their formation are included.

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TITLE: "Hydrated Products From Silicate-Containing Industrial Waste, Lime and Gypsum"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 201-213

TEXT OF ENGLISH ABSTRACT: Hydrated silicates are obtained from industrial waste (fly ash, coal mining waste, fluidized bed ash, slag), mixed with lime and gypsum under 100° steam curing or 175° autoclaving. By means of XRD, DTA, SEM and separation with heavy liquid, it is found that in all the above products the calcium silicate hydrates formed under autoclaving are well-crystallized tobermorite and poorly-crystallized CSH(B) coexisting in continuous phase and CSH(B) formed in steam curing. In either type of curing, Al^{3+} enters the structure of calcium silicate hydrate to form alumina-containing silicate hydrates. Formation of the hydrated phase depends to a considerable degree on reaction temperature and quantity of lime. Within certain limits, increasing quantities of lime aid in the formation of tobermorite (including alumina-containing tobermorite) and hydrogarnet. Calcium sulphoaluminate hydrate can exist only under 100° C steam curing.

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TITLE: "Iron-Doped Vycor"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 214-222

TEXT OF ENGLISH ABSTRACT: Fe^{2+}/Fe^{3+} -doped Vycor is obtained by impregnating porous glass with a ferrous ion solution followed by hydration and consolidation under reducing conditions. The glass has low infrared and ultraviolet transmission and 80 percent transmission in the visible range. Durability and thermal shock resistance are almost the same as for silica glass. The softening point of the glass is above 1400° C and the coefficient of linear expansion is about $8.6 \cdot 10^{-7}$. Details of production technology of the glass, including the ferric reduction mechanism, light absorption and crystallization, are discussed.

AUTHOR: None

ORG: Quick-Setting and Rapid-Hardening Sand-Cast Cement Group, Cement Research Division, Building Materials Research Institute

TITLE: "Investigation of Quick-Setting and Rapid-Hardening Sand-Cast Cement"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 223-231

TEXT OF ENGLISH ABSTRACT: Quick-setting rapid-hardening sand-cast cement is a new type of excellent inorganic binder for foundry molding sand. It is characterized by quick setting and rapid hardening at normal temperatures, low residual compressive strength at high temperatures and setting time regulability by means of retarders. XRD analysis, microscopic examination, determination of weight loss on heating and chemical analysis are used to investigate the clinker material components and hydration products. The properties are considered to depend mainly on the introduction of the new mineral component $C_{11}A_7 \cdot CaF_2$ into Portland cement clinker. This reacts with anhydrite to produce calcium sulfoaluminate hydrates with a large quantity of crystalline water (primarily high-sulfate form with some low-sulfate form) when the cement itself is suitable basic.

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TITLE: "Thermal Expansion Behaviour of Cordierite-Based Glass Ceramics"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 232-237

TEXT OF ENGLISH ABSTRACT: The thermal expansion behavior of cordierite-based glass ceramics containing TiO_2 is studied. These contain much crystalline phase and little glass phase, as well as rutile and magnesium aluminum titanate solid solution. The crystals have anisotropic thermal expansion in cooling during crystallization treatment, which produces internal microcracks due to thermal stress. A stress calculation formula is used to study microcrack formation. The cracks are represented by a hysteresis loop between the heating and cooling curves, which can be measured by a dilatometer. A functional correlation between the increment in microcracks and the temperature is established and an empirical formula derived. The SEM is used to analyze locations and size of microcracks.

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TITLE: "Structure of $\text{La}_{0.84}\text{Sr}_{0.16}\text{CrO}_3$ and Its Use for Conducting Leads As a Substitute for Pt-Rh Wire"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 238-243

TEXT OF ENGLISH ABSTRACT: Samples of $\text{La}_{0.84}\text{Sr}_{0.16}\text{CrO}_3$ were synthesized from La_2O_3 , SrCO_3 and Cr_2O_3 at 1400° . The structures of $(\text{La}_{1-x}\text{Sr}_x)\text{CrO}_3$ belong to the cubic or pseudocubic system. Structural change follows definite patterns and depends on the values of x . $\text{La}_{0.84}\text{Sr}_{0.16}\text{CrO}_3$ belongs to the tetragonal system. The material was used as "conducting leads" on ZrO_2 -based heating elements as a substitute for expensive Pt-Rh wire. The working temperature of these elements can reach $2,000\text{--}2,100^\circ\text{C}$ in an oxidizing atmosphere. The elements are used in various kinds of high-temperature furnaces. A number of physical characteristics such as the electrical properties of the conducting leads and features of the utilization of ZrO_2 -based heating elements are also described.

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TITLE: "Structure and Properties of R_2O (Na_2O , K_2O)- Al_2O_3 - SiO_2 System Glasses"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 244-254

TEXT OF ENGLISH ABSTRACT: Comparison of infrared absorption spectra of typical crystals of albite, orthoclase, nepheline, spodumene, kyanite and beryl with those of R_2O - Al_2O_3 - SiO_2 system glasses indicates that in the latter the Al^{3+} ions are four-coordinated when $\text{R}_2\text{O}/\text{Al}_2\text{O}_3$ is much greater than 1. In Li_2O - Al_2O_3 - SiO_2 glasses, however, coordination for some of the Al^{3+} ions may be sixfold. No anomaly related to the presence of mixed alkali is found in the infrared and ultraviolet absorption spectra for a series of aluminosilicate glasses. The mixed alkali effect appeared in some of the glasses but not in others in the presence of mixed alkali. A structural model of R_2O - Al_2O_3 - SiO_2 is discussed. Satisfactory stability requires a combination of eutectic composition with structural considerations. An excess of Na_2O is required; addition of K_2O or Li_2O will produce a mixed alkali effect, improving the properties of the glass.

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TITLE: "Radio-Frequency Melting of Laser Glasses"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3,
Aug 79 pp 255-261

TEXT OF ENGLISH ABSTRACT: Electric and magnetic field heating techniques for melting laser glasses are studied. The use of magnetic field heating is suitable because melting glass is an ionic electric conductor. The resistivity of laser glasses at high temperatures is measured and the parameters associated with magnetic field heating determined. A radio-frequency melting device with a 6-liter crucible has been built, and laser glass rods of high quality have been made. Experimental results show some advantage from radio-frequency melting. This technique can be used to produce laser glasses and other special glasses of high purity.

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TITLE: "An Approach to Recent Trends in Concrete Science and Technology"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3,
Aug 79 pp 262-270

TEXT OF ENGLISH ABSTRACT: Among present trends in the development of concrete science and technology, high strength with reduced weight deserves major consideration. It is suggested that pore-gradation studies may bring a new breakthrough in concrete science. As pores of different sizes have different effects on the physical and mechanical properties of concrete, improved pore gradation will improve strength and other related properties. An expression for the condition for high-strength concrete with reduced weight is presented. Improved pore gradation can be achieved by several methods, including effective additives, constrained expansion, polymer impregnation and the like. The problems of brittleness and structural stability with reduced sections must be solved.

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TITLE: "Observations on Electrolytic Deposition of Sodium in Beta-Alumina Ceramics"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 271-274

ABSTRACT: Beta-alumina ceramics are good ionic conductors which are used in sodium-electrode high-energy batteries, electrochemical devices and the like. But current flow results in the deposition of metallic sodium in the ceramic, resulting in breakage and reduced lifetime. The electrical conductivity of the Na/beta-Al₂O₃/Na/Hg and Na/beta-Al₂O₃/Cu systems are studied at room temperature and that of the Na/beta-Al₂O₃/Na system at 350°. Brief high-intensity peaks of current flow, associated with deposition, are observed in the room-temperature study. Increases in conductivity over time are noted in the 350° study. Three types of deposition centers are investigated: surface microcracks and air holes, easily-reducible impurity accumulations on the surface, and nonuniformities of composition.

AUTHOR: None

ORG: None

TITLE: "China Metals Society and Silicate Society Hold Refractory Technology Conference in Luoyang"

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 p 275

ABSTRACT: The China Metals Society and Silicate Society held a refractories technology conference from 29 May to 3 June 1979 in Luoyang. Some 107 representatives of 69 units involved in production, use, research, development, education and refining attended. The 112 papers received dealt with such topics as alkaline refractories, aluminosilicate refractories, amorphous refractories and the like. Stress was laid on improving the quality of silicates currently in production and developing high-quality new ones. The two societies set up a joint refractory materials committee and eight working groups.

AUTHOR: None

ORG: None

TITLE: "Nonmetallic Minerals Committee Holds Conference in Suzhou

SOURCE: Beijing GUI SUANYAN XUEBAO [JOURNAL OF SILICATES] in Chinese No 3, Aug 79 pp 275-276

ABSTRACT: The Nonmetallic Minerals Committee of the Chinese Silicate Society held a conference from 1 to 7 June in Suzhou. Some 75 representatives of 38 organizations in the field attended. The meeting, the first of its kind, was chaired by committee chairman ZHAO Jingqi [6392 2529 3825]. The 52 papers dealt with such topics as rock wool, diamond, kaolin, vermiculite and zeolite. Four study groups were set up on geological resources, mining development, selection and processing, and scientific popularization. The following areas of work during the next two years were mapped out: domestic scientific work; popularization work; and participation in international scientific exchange.

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